Claims

1. A mattress protector to shield a mattress or mattress core from body fluids, the protector comprising a shielding cover to fit over the mattress or mattress core, the shielding cover having a layer that is impermeable to body fluids and that is outermost in use, and a detector within the cover or below or in an under layer of the cover, the detector being below the impermeable layer of the shielding cover, to detect body fluid that has passed into or through the cover, the fluid having penetrated the impermeable layer of the shielding cover.

2. A mattress protector as claimed in Claim 1, wherein the cover is a transparent cover for a mattress with an inter-layer or under-layer having a dye that is activated by a body fluid to provide a visual indication of presence of the body fluid.

3. A mattress protector as claimed in Claim 2, wherein the dye is not reactive to water vapour.

4. A mattress protector as claimed in Claim 3, wherein the dye is specifically reactive to one or more organic compounds in urine, and/or other body fluids.

5. A mattress protector as claimed in Claim 1, wherein the inter-layer or under-layer is absorbent.

6. A mattress protector as claimed in Claim 1, wherein the inter-layer or under-layer is made from a stretchable material.

7. A mattress protector as claimed in Claim 1, wherein the detector comprises electrically conductive material in or associated with the inter-layer or under-layer whereby the detector responds to changes in electrical conductivity to detect body fluid that has passed through the cover

8. A mattress protector as claimed in Claim 7, wherein the detector comprises electrically conductive threads or fibres.

9. A mattress protector as claimed in Claim 8, wherein the electrically conductive threads or fibres are configured in rows or a matrix over the inter-layer or under-layer.

10. A mattress protector as claimed in Claim 8, wherein the electrically conductive threads form the warp or weft of the inter-layer or under layer.

11. A mattress protector as claimed in Claim 8, which further comprises a processor which monitors the electrical conductivity between neighbouring conductive threads so that in the event of a leak of ionic (electrically conductive) fluid into or through the mattress protector, a short circuit between threads will be detected and recorded.

12. A mattress protector as claimed in Claim 11, wherein the processor is a microprocessor integrated with the protector and adapted to be interrogated by an external device to determine if any leak events had occurred.

13. A mattress protector as claimed in Claim 12, wherein the microprocessor is within or below the cover and is adapted to be interrogated by an inductive link.

14. A mattress protector as claimed in Claim 7, wherein positive and negative tracks are provided on opposite sides of the fabric whereby wrinkles or folds in the fabric will not bring positive and negative tracks together.

15. A mattress protector as claimed in Claim 7, wherein a protective layer of fabric is applied covering the electrical tracks, to provide mechanical separation between tracks in the event of creasing or folding, the layer being pervious to fluids.

16. A mattress protector as claimed in Claim 8, wherein the conductive threads or fibres are included in the system as a knitted fabric, rather than a woven fabric for stretchability of the material.

17. A mattress protector as claimed in Claim 7, wherein the protector is of a woven fabric and slits are provided in the woven fabric so as to allow expansion of the material.

18. A mattress protector as claimed in Claim 7, wherein when the detector detects body fluid that has passed through the cover a signal is substantially immediately transmitted to a remote receiver connected to a computer.

19. A mattress protector as claimed in Claim 18, wherein the protector has a radio frequency transmitter situated inside the mattress to transmit the signal to the receiver.

20. A mattress protector as claimed in Claim 18, wherein the computer is programmed to record the time and location of the event, so that suitable action may be taken.

21. A mattress protector as claimed in Claim 7, wherein when the detector detects body fluid that has passed through the cover the circuit prompts a microcontroller to effect an irreversible change in a visible indicator.

22. A mattress protector as claimed in Claim 21, wherein the visible indicator is visible from the outside of the mattress cover via an appropriate clear window.

23. A mattress protector as claimed in Claim 21, wherein the visible indicator comprises a combination of a small heating element inside the mattress cover, and an irreversible thermochromic strip in the corresponding place outside the mattress cover.

24. A mattress protector as claimed in Claim 7, wherein the position of a mechanical flag can be activated irreversibly by means of a solenoid or other mechanical actuator and the position/condition of this flag may be determined by feeling through the mattress cover, without opening the cover.

25. A mattress protector as claimed in Claim 24, wherein the flag is formed of a shaped memory alloy, which regains a predetermined shape irreversibly when subjected to an electrical stimulus.

26. A mattress protector as claimed in Claim 1 in combination with a mattress.

27. A mattress core encased in a mattress protector of Claim 1.